

Date: Sun, 26 Sep 93 04:30:22 PDT
From: Ham-Space Mailing List and Newsgroup <ham-space@ucsd.edu>
Errors-To: Ham-Space-Errors@UCSD.Edu
Reply-To: Ham-Space@UCSD.Edu
Precedence: Bulk
Subject: Ham-Space Digest V93 #38
To: Ham-Space

Ham-Space Digest Sun, 26 Sep 93 Volume 93 : Issue 38

Today's Topics:

 * SpaceNews 27-Sep-93 *
 9600 baud radio setup
 A question..
 UoSAT-5 (UO-22) project

Send Replies or notes for publication to: <Ham-Space@UCSD.Edu>
Send subscription requests to: <Ham-Space-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Space Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-space".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Fri, 24 Sep 1993 09:46:52 MDT
From: destroyer!nntp.cs.ubc.ca!alberta!nebulus!ve6mgs!usenet@uunet.uu.net
Subject: * SpaceNews 27-Sep-93 *
To: ham-space@ucsd.edu

SB NEWS @ AMSAT \$SPC0927
* SpaceNews 27-Sep-93 *

BID: \$SPC0927

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SpaceNews
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MONDAY SEPTEMBER 27, 1993

SpaceNews originates at KD2BD in Wall Township, New Jersey, USA. It is published every week and is made available for unlimited distribution.

★ ARSENE FAILURE ★

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The ARSENE satellite is no longer responding to telecommands sent by the FF1STA command station at ENSAE School in Toulouse. Numerous commands have been sent to try to reactivate the satellite without success. Since September 9th at around 00:00 UTC when ARSENE signal was last heard in mode S, controllers have not received any more telemetry from the satellite. The transmission stopped at the moment ARSENE was moving out of a one hour eclipse period. Contrasting with what was earlier thought, the SHF power output stage temperature never reached more than 42 degrees Celsius before entering into the Earth shadow. The temperature dropped by ten degrees when in the eclipse part of the orbit. The FF1STA command station was able to observe telemetry data indicating that the automatic system for handling eclipse power conditions was working fine. All collected telemetry data before the failure is carefully being investigated by ARSENE experts. There will be an attempt made to recover ARSENE using the FC1ELL EME station in Argenteuil near Paris, with an 8m dish and high power UHF transmitter.

[Info via Bernard, F6BVP]

★ OSCAR-11 FAILURE ★

=====

Controllers at the UoSAT Control Centre at the University of Surrey are requesting the help of the amateur radio community around the world in collecting information and data from UoSAT-OSCAR-11. The Forth Diary Operating system aboard UO-11 has crashed. This has rendered the spacecraft in a non-nominal operating state. The collection of information and data related to the operational condition of the spacecraft will be essential in helping the controllers to understand the spacecraft's current condition. Therefore the UoSAT command team is asking radio amateurs around the world to monitor the spacecraft and relay any reception reports and or telemetry data collected from the spacecraft to them via G0SYX @ UO-22, G0SYX @ K0-23 or via the Internet address: D.Loughmiller@ee.surrey.ac.uk.

UoSAT-OSCAR-11 operates on a 2M frequency of 145.826 MHz and on a 70 cm frequency of 435.027 MHz. Controllers are most interested in which beacon is active at the time of any given observation and whether the signal contains data or not. Any telemetry data collected would be of particular interest to the controllers as well. Any observations provided by the amateur community will be most appreciated. UoSAT controllers will issue subsequent bulletins about the status of the UoSAT-OSCAR-11 spacecraft as the situation develops.

[Info via K05I/G0SYX and the AMSAT News Service]

* VE20NT MOONBOUNCE TEST *

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All appears ready for the upcoming EME tests by The Toronto VHF Society, using the callsign VE30NT. We will use the 46-m (150') diameter radio telescope at Algonquin Provincial Park (grid FN05xw) during this year's A.R.R.L. International EME Competition.

VE30NT will be active the full weekend of each contest period, October 9/10 and November 6/7, 1993. Below is the schedule of operations:

Date	VE30NT TX Freq.	Listening range	Approx. times (UTC)
Oct 9	432.050 MHz	432.050 - 432.060 MHz	0445-1830
Oct 10	144.029 MHz	144.025 - 144.030 MHz	0550-1900
Nov 6	432.050 MHz	432.050 - 432.060 MHz	0340 1700
Nov 7	1296.050 MHz	1296.050 - 1296.060 MHz	0450-1730

VE30NT will operate "split" and we ask that stations avoid calling us on our transmit frequency. VE30NT will transmit and receive with left-hand circular-polarization (LHCP) off the dish on all bands. This means that after reflection from the Moon, signals will be right-hand circular polarized (RHCP). This will permit us to work stations with vertical, horizontal, or RHCP polarization. VE30NT will transmit at the legal power limit on 144 and 432 MHz and 100 watts on 1296. Power amplifiers and receiving preamps are located at the dish feed.

As users of a non-amateur antenna, we will not be in competition with other stations. Our intention is to provide an initial EME contact for as many stations as possible. Consequently, we strongly discourage duplicate or "insurance" contacts. Operation will be primarily on CW, although SSB might be employed depending on signal strength and number of stations calling.

All operation will be "random" format, meaning that VE30NT will accept no skeds. If conditions are poor, we will use a 30-second sequence in which VE30NT transmits the first 30 seconds and listens during the second 30 seconds of each minute. Note that this is NOT the usual sequence for EME skeds.

VE30NT will maintain HF liaison on 14.345 MHz during daylight hours and on 3.818 MHz at night.

We anticipate being able to work OSCAR-class stations with 100 watts of output power on 144 and 432 MHz; 25 watts should be sufficient on 1296. A photograph of the dish is shown in the "Up Front in QST" section of the

October issue; see also "The World Above 50 MHz" in the same issue.
Technical information concerning the dish and VE3ONT's operation was
presented by W9IP and VE3ASO at the Central States VHF Conference and the
Eastern VHF/UHF Conference.

For clarification, contact Dennis Mungham VE3ASO (613) 998-7330/989-2339 or
Michael Owen W9IP (315) 379-0161/379-5975. QSL to VE3ONT (Callbook
address).

[Info via Michael Owen, W9IP]

* THANKS! *

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Thanks to all those who sent messages of appreciation regarding SpaceNews,
especially:

K6CGW AL7KD KB8KBI Roy Stai Paul Milsom

* FEEDBACK/INPUT WELCOMED *

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Mail to SpaceNews should be directed to the editor (John, KD2BD) via any
of the following paths:

FAX : 1-908-747-7107

PACKET : KD2BD @ N2KZH.NJ.USA.NA

INTERNET : kd2bd@ka2qhd.ocpt.ccur.com -or- kd2bd@amsat.org

MAIL : John A. Magliacane, KD2BD
Department of Engineering and Technology
Advanced Technology Center
Brookdale Community College
Lincroft, New Jersey 07738
U.S.A.

<<= SpaceNews: The first amateur newsletter read in space! -=>>

/EX

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John A. Magliacane, KD2BD * /\ /\ * Voice : 1-908-224-2948
Advanced Technology Center |/\ /\ /\ | Packet : KD2BD @ N2KZH.NJ.USA.NA
Brookdale Community College |/\ /\ /\ | Internet: kd2bd@ka2qhd.ocpt.ccur.com
Lincroft, NJ 07738 * /\ /\ * Morse : -. -.. ..--- -..

Date: 24 Sep 1993 13:15:01 -0500
From: swrinde!cs.utexas.edu!not-for-mail@network.ucsd.edu
Subject: 9600 baud radio setup
To: ham-space@ucsd.edu

In-Reply-To: <9309241331.AA18552@eagle.aud.alcatel.com>; from "Tom Mcdermott" at
Sep 24, 93 8:31 am
X-Mailer: ELM [version 2.3.1 PL11]

>
> Bruce: I cannot post to the newsgroup, so I will try to answer your question
> directly. You may post the response, if you like.
>
> 'tone pairs' are not used on FSK - you may be thinking about AFSK (such
> as is currently used on 1200 baud 2-meter FM packet). At 9600 baud, when
> operating FSK, you actually deviate the carrier frequency directly.
>
> This may be a little confusing, the difference is subtle.
>
> In FSK you provide two tones, one the mark, and the other the space. Let's
> say that the mark tone is 1000 hertz. Let's also assume that the carrier
> frequency is 450.000 Mhz. (don't tell the FCC!). In AFSK, when we apply
> the 1000
> sine-wave tone to the FM-modulator, we produce a carrier that moves above and
> below the channel frequency 1000 times a second. Notice we have not yet
> applied any modulation - we are just transmitting a MARK tone. How much
> does the carrier swing above and below the channel frequency? Well, that
> depends on the amount of deviation we apply to the carrier. A low amount
> of deviation, say 100 hz, would cause the carrier to swing from 449.99990 to
> 450.00010 Mhz 1000-times per second. A large amount of deviation, say
> 10 Khz, would cause it to swing from 449.900 to 450.100 Mhz, 1000-times
> per second.
>
> In FSK, however, we choose two channel frequencies to represent the
> MARK and the SPACE, say for example we decide to use 449.997 as the SPACE, and
> 450.003 as the MARK. We have no 'tones' to speak of. A mark (a logic one)
> is a DC level we feed to the modulator, while the SPACE (a logic zero) is
> a DIFFERENT DC level we feed to the modulator.
>
> In AFSK, we converted the DC_level of the MARK to the 1000 hertz tone,
> then applied that tone to the modulator. In FSK, we bypass the step of
> converting the MARK to a tone, and just apply the mark (the logic level)
> directly to the modulator.
>
> In reality, we will filter the transitions in the logic levels between
> MARK and SPACE a little bit, since feeding things with sharp-square voltage
> changes to the modulator would result in a very broad transmitted signal.

>
> In the US, on the 450 ham band, it is traditional to use about 3 khz deviation
> FSK for 9600 baud. That means that the SPACE is 3 khz below the channel,
> while the MARK is 3 khz above the channel (a net difference of 6 khz).
>
> Note that to achieve FSK, you must apply the modem's transmit DC type signal
> directly to the radio's crystal-varactor diode. YOU CANNOT APPLY THIS SIGNAL
> TO THE MICROPHONE JACK OF A STANDARD FM-VOICE RADIO. IT WILL NOT WORK !
>
> Speaking from substantial experience in the 9600 baud ham business, I have
> made a number of different radios work at 9600 baud. Generally, I have the
> best luck with crystal controlled commercial surplus, but others can be
> made to work - it can get complicated, though. 9600 baud FSK is not as
> forgiving as AFSK, and you should consider finding someone with an
> oscilloscope, and preferably a service monitor in order to be successful. I
> have to completely characterize a radio before I use it at 9600 baud. I measure
> how sensitive the varicap is to the applied DC voltage - so I know exactly
> what signal level to apply to get exactly 3 khz deviation. I also have
> to check the frequency response of the TX varicap circuit to make sure
> that it does not introduce distortion. Also, I have to carefully measure the
> RX discriminator or quadrature detector response to make sure that it is
> linear, and well centered.
>
> Finally, a subtle point, some radio use low-
> side injection on the RX, others use high-side injection. Also, in the
> FM world, manufacturers don't care about the polarity of the discriminator -
> that is whether the disc produces a high-output-voltage for a higher input
> frequency, or whether it produces a lower-output-voltage for a higher input
> frequency. The upshot of this is that the received signal may be 'upside
> down'. You will have to invert the logic level if it is upside-down !!
> (Do this at the receiver, or else you will be incompatible with everyone else).
>
> Sorry for the long diatribe - hope this answers your question.
>
> Tom, N5EG
> Texas Packet Radio Society
>
>

Tom:

Thanks for your response. Lots of people answered me but none in such detail.
Diatribe appreciated. I am sort of in the collecting information stage at this
point of the project. My goal is to get onto oscars 22 & 23. I think I have
all the basic equipment and radio schematics and a scope that goes to 5mhz.
All I need now is a plan of attack. I have been on oscars 16 & 19 at 1200 bpsk
so this is an incremental step forward (although I suffered a setback when the
new version of the satellite software was compiled using the 286 instruction
set. All of a sudden I'm short a computer). My radios are a modified pro 2006

for the receiver and a old Icom IC-211 all mode 2meter transeiver. The Pro 2006 has a nominal sensitivity of +- 9khz with a limit of +-12khz so I have hope this may be wide enough. I'll worry about the Transmitter when I get a downlink working. My modem is a DSP-12. If you or anyone has any hints or any published information I would appreciate it.

Bruce.

Ps: I don't have access to a news reader either. I use Gopher to read the news ant post via a gateway. Try sending mail to
rec-radio-amateur-space@cs.utexas.edu
or whatever news group you want to post to.

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Bruce M. Marshall bmm1@freenet.fsu.edu voice 615 481 0990 fax 615 481 8039

Date: Fri, 24 Sep 1993 21:34:00 -0500
From: swrinde!cs.utexas.edu!math.ohio-state.edu!howland.reston.ans.net!agate!
tcsi.tcs.com!iat.holonet.net!cjbbs!Fredmail@network.ucsd.edu
Subject: A question..
To: ham-space@ucsd.edu

Is it possible using a 10m mobile rig and a 1/4 wave vertical get a decent signal lets say from A0-13's downlink?

Please be kind... I'm just starting out studying satellites

George
N2PHQ

Date: 24 Sep 1993 19:21:48 GMT
From: math.fu-berlin.de!mailgzrz.TU-Berlin.DE!w172zrz!david@uunet.uu.net
Subject: UoSAT-5 (U0-22) project
To: ham-space@ucsd.edu

Hi there !

We're taking part on a scientific competition called "Jugend Forscht" for young people. We're working on a program for decoding and analysing the data of UoSAT-5.

We would be glad to get a big archive of data. Also it would be helpful to connect the Univesity of Surrey. Can somebody help

us to get an e-mail address.
If somebody has ideas, infos, hints etc. please mail us!!!

AdvThanks

Thorsten Kogge, Alexander Kordecki, David Siegel

End of Ham-Space Digest V93 #38
